DOCUMENT RESUME

ED 141 271 SP 011 100

AUTHOR Armstrong, David G.; Savage, Tom V., Jr.
TITLE Specifying Instructional Objectives: A Learning Package.
PUB DATE 71
NOTE 24p.

EDRS PRICE MF-$0.83 HC-$1.67 Plus Postage.
DESCRIPTORS *Cognitive Objectives; Concept Formation; *Instructional Design; Instructional Improvement; Instructional Programs; Learning Characteristics; *Learning Modules; Learning Theories; Performance Factors; Student Attitudes; *Teacher Education; *Teaching Methods

ABSTRACT

This module for the classroom teacher is intended to help the teacher realize specific aims in instructional practice. Objectives outlined for the teacher are: (1) to be able to distinguish between broad goals and instructional objectives; (2) to be able to identify the characteristics of an instructional objective; (3) to be able to describe the general categories of instructional objectives; and (4) to be able to write instructional objectives precisely. The teacher should be prepared in an instruction session to clearly identify what each student is expected to do and the limits of what should be accomplished. An understanding that the learning process consists not only of intellectual activity but also physical activity (sight, touch, etc.) is important in teaching successfully. It is also essential that the teacher encourage enthusiasm and interests in the student so learning will be pursued beyond the classroom. At the conclusion of this guide, a competency check is presented for the teacher to assess his/her knowledge of the objective originally outlined at the beginning of the paper. (JD)

****
* Documents acquired by ERIC include many informal unpublished *
* materials not available from other sources. ERIC makes every effort *
* to obtain the best copy available. Nevertheless, items of marginal *
* reproducibility are often encountered and this affects the quality *
* of the microfiche and hardcopy reproductions ERIC makes available *
* via the ERIC Document Reproduction Service (EDRS). EDRS is not *
* responsible for the quality of the original document. Reproductions *
* supplied by EDRS are the best that can be made from the original. *
****

ED141271

SPECIFYING INSTRUCTIONAL OBJECTIVES

EMPORIA KANSAS STATE COLLEGE
TEACHER CORPS
RESOURCE CENTER
ITEM NO. 940
FOR INSPECTION ONLY

A LEARNING PACKAGE

BY

DAVID G. ARMSTRONG

TOM V. SAVAGE, JR.

U.S. DEPARTMENT OF HEALTH,
EDUCATION & WELFARE
NATIONAL INSTITUTE OF
EDUCATION

THIS DOCUMENT HAS BEEN REPRODUCED EXACTLY AS RECEIVED FROM THE PERSON OR ORGANIZATION ORIGINATING IT. POINTS OF VIEW OR OPINIONS STATED DO NOT NECESSARILY REPRESENT OFFICIAL NATIONAL INSTITUTE OF EDUCATION POSITION OR POLICY

SP 011 100

SPECIFYING INSTRUCTIONAL OBJECTIVES

Looking Ahead

After reading this package, you should be able to:

1. distinguish between goals and instructional objectives.
2. identify the three characteristics of an instructional objective.
3. describe the three general categories of instructional objectives.
4. write instructional objectives that focus on each of the three major dimensions of learning.

If you think you can meet these objectives before reading the package, turn immediately to the end of the textual material on instructional objectives and complete the knowledge-level competency check.

. . .

Clear, precise statements of objectives promote effective instruction. Learning occurs most efficiently as a consequence of planned experiences constructed in such a way that the outcomes of learning can be observed. It is evident that young people do not learn best when objectives of instruction are not clearly stated and when achievement is expected because of a mystical coming together of random teacher acts.

Even those who reject the notion of precisely defined objectives do, in fact, have objectives and do look for subtle indicators to assess the degree to which those objectives are accomplished. The difficulty for the pupil or student in the classroom in such a situation is that he is faced with the necessity of guessing what the teachers objectives are and how those objectives will be evaluated. The actual criteria that

are used may or may not be valid. What is it that counts? A friendly smile? A low level of noise? An eager hand raised in response to every question? When teachers fail to specify objectives clearly to signal to youngsters the bases for evaluation, unnecessary ambiguity and confusion result.

Specification of precise instructional objectives provides a means of establishing the extent to which improvement in pupil or student performance is occuring. In order to make grounded judgments of this type, it is necessary that the language chosen to describe instructional objectives be chosen carefully. The need for care in selecting words for objectives is exemplified in a very traditional, and deficiently-stated, social studies objective: "to promote the development of good citizenship." The objective posits a commendable goal, but as stated the phrase stands as a very imprecise referent against which to measure a youngster's progress. What, in fact, is "citizenship?" And beyond that, "good citizenship?" At what point does "good citizenship" begin to slop over into "mediocre" or even "bad" citizenship? Until such questions are answered clearly, learners' progress toward the end of "good citizenship" remains very difficult to measure.

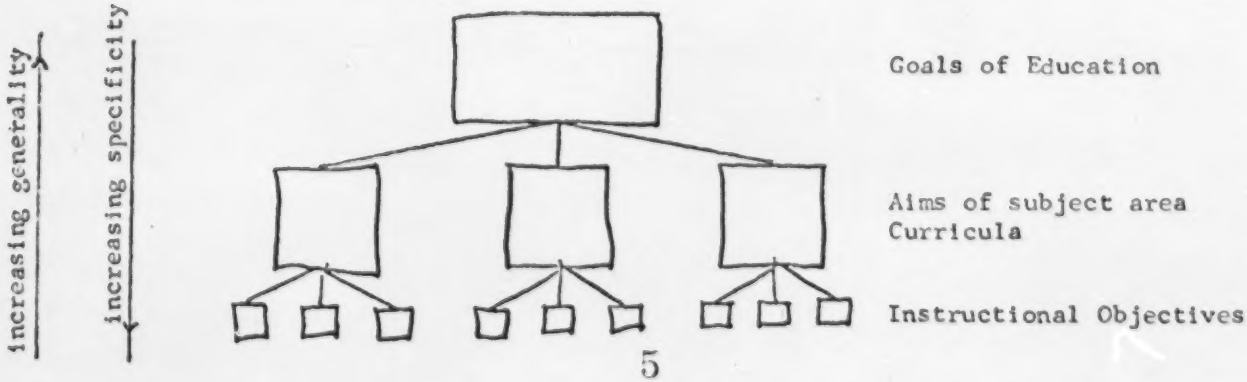
The lack of specificity found in many statements of instructional objectives results in large measure from a confusion between the functions of overarching educational goals and specific instructional objectives. Broad educational goal statements have been used frequently by school boards to indicate the general directions of the educational program. The provide a rough framework for the shaping of school district policies. These goals ordinarily are derived from a balancing of information from four general areas: (1) information about what society is seen as desiring at a particular point in time; (2) information from professional

scholars in the various subject matter areas; (3) information from educational psychologists and theorists concerning the learning process and what education ought to be doing in response to knowledge about that process; (4) information about the characteristics of learners in the area being served. This combination frequently results in the compilation of a series of statements of which the following are typical examples:

Students will develop an appreciation of the scientific method.
Students will develop a respect for democratic institutions.
Students will understand the elements of capitalism.
Students will exemplify democratic principles in their habits of living.
Students will learn to tolerate diversity.

These goals do have value in establishing a general universe of concern for education. But, by themselves, they do not provide an adequate framework for the classroom teacher to use as he plans for daily instruction. There remains a need to break these goals into specific instructional objectives. The task of transforming these goals into precise instructional objectives is one of the most important responsibilities of the classroom teacher. In addressing this task, there is a need to keep in mind the three-tiered system that leads down from the overall goals of education to specific instructional objectives.

THE RELATIONSHIP OF GOALS AND OBJECTIVES



The task of establishing instructional objectives results from the necessity to refine the aims of subject matter curricula into specific entities that can guide the instruction of a given teacher in a given classroom. Instruction can be guided only if some mechanism exists for evaluating learner performance on the instructional objectives. To facilitate the collection of data that can be used to make these evaluations, it is wise to prepare instructional objectives that are stated in terms of what learners ought to be able to do as a consequence of instruction. Observable learner behaviors are easily measured and yield information that can be used to monitor the effectiveness of a given instructional sequence.

Characteristics of instructional objectives. An instructional objective should include three elements: (1) a statement concerning which learner or learners must demonstrate a behavior; (2) a description of the behavior the learner or learners must demonstrate; and, (3) a statement of the criterion or degree to which learners must demonstrate a behavior. In simpler language, these characteristics are sometimes termed (1) the "who," (2) the "what," and (3) the "extent."

The "who" is an essential feature of an objective because personalization of instruction implies that all learners will not go through common learning experiences. Consequently, it is necessary to indicate which individuals will be required to demonstrate the behaviors called for in the objective. The "who" characteristic of an objective asks: "Which learner(s) will be able to do what, and how competently, as a result of instruction?"

The "what" characteristic addresses itself to the specific nature of the desired behavior or performance of the learners. The "what" involves the simple question: "What should the learner be able to do as a result of

this instruction?" To provide a basis for answering this question, specific observable behaviors need to be identified that will be taken as indicators that learners are moving toward mastery of the instructional objectives.

There is a need to exercise extreme care in selecting verbs to describe the observable behaviors that provide a means of evaluating learner performance on objectives. Verbs that are subject to a wide range of interpretations are notably unsuitable. For example, verbs such as "to understand" or "to appreciate" are subject to much broader interpretation that verbs such as "to write" and "to illustrate."

Occasionally it is difficult to use a verb more specific than "to appreciate" or "to understand" in developing a particular objective. Such situations demand that a clear specification be made of what is going to be taken as evidence of "appreciating" or "understanding." For example, will the "understanding" be demonstrated by an art project, by a term paper, by an illuminated manuscript, or by a paper and pencil test? Acceptable indicators need to be specified by the teacher responsible for the development of the instructional objective.

No master lists of tasks that include all indicators of "appreciating" and "understanding" exist. Each classroom teacher must make judgments about what would be appropriate in the light of his own instructional situation. While the specific indicators that are chosen may vary among individuals and circumstances, there is a common necessity to specify the indicators that are selected as appropriate, whatever they are. Clearly identified indicators put the teacher in a position to critique the appropriateness of his selection in terms of how well those indicators serve as measures of learner progress. Without this specificity, the teacher has little basis for modifying his procedures since he really doesn't

know what has been done in the first place.

The "extent" component of an objective indicates the degree to which the learner is to demonstrate an identified behavior. There are no criteria that are applicable to all teachers, subject areas, and classrooms. In planning for instruction, it is necessary for an individual teacher to decide upon standards that are appropriate to the characteristics of his own learners. Once the teacher has made decisions concerning these standards, then he is ready to include statements of extent in his objectives. Statements of extent answer the question: "How well must a learner be able to demonstrate what he has acquired as a result of instruction?"

In summary, a complete objective must include a reference to the "who," the "what," and the "extent." No instructional objective is complete without all three elements. Some examples of adequate instructional objectives are provided below:

"who" "what" "extent"
1. Each student will name orally at least four of the five most populous states in the union.

"who" "what"
2. Group three will point to rivers and lakes on their seat maps "extent" with 100% accuracy.

"who" "what" "extent"
3. John will write a 250-word paper making no more than three comma errors.

"who" "what" "extent"
4. Paula's group will list on the board at least three Biblical symbols from John Steinbeck's The Grapes of Wrath.

"who" "what" "extent"
5. Each student will write a one-act play including three elements of classical French tragedy.

As a check of your understanding of the necessary components of an instructional objective, place a plus (+) in the space before acceptable examples and a minus (-) in the space before unacceptable examples.

_____ 1. John Adams will identify orally, from a group of six poems, one that has seventeen syllables to the line.

_____ 2. Each student will describe in a short paper five causes of the Civil War.

_____ 3. Group four will name the capitals of the states.

_____ 4. Each student will learn to appreciate folk music with 100% accuracy.

In the sample objectives above, numbers 1 and 2 are acceptable instructional objectives. Each includes the three key elements of "who," "what," and "extent."

Sample objective 3 includes the "who" and the "what," but the "extent" is missing. Thus, the precise intent of the teacher is unclear. Is each student to name the capitals with no errors at all? With five errors? With twenty errors? To repair this objective, there is a need to indicate what will be accepted as a mimimum level of performance. There are number of ways a criterion might be included to make the objective acceptable. The following represent revisions that would remedy the situation:

..... Group four will name the capitals of the states with 100% accuracy.

..... Group four will name the capitals of the states with 70% accuracy.

..... Group four will name the capitals of the states making no errors in naming the capitals of the Pacific Coast states and no more than five errors in naming the capitals of the other states.

Sample objective 4 also does not meet all the requirements of a complete instructional objective. The "who" and the "extent" are there, but the "what" is not specified in terms of observable learner behavior. A verb referring to an observable behavior needs to be substituted in place of "learn to appreciate." In selecting a new verb, it is necessary to ask, "What will stand as evidence of appreciation?" Several of the following instructional objectives could have been generated after responses to that question:

..... Each student will write a paper in which he lists seven things he likes about folk music.

..... Each student will choose to listen to folk music 50% more frequently after the unit on folk music than before the unit on folk music.

..... Each student will make a chart on which five characteristics of folk music are explained.

..... Each student will write at least two folk songs.

Kinds of instructional objectives. Learning can be thought of as an amalgam of intellectual, attitudinal, and psycho-motor components. The intellectual dimension includes the cognitive, academic aspects of school experiences. The attitudinal dimension concerns learners' feelings about their school activities. The psycho-motor area focuses on physiological development as it relates to such issues as fine muscle control and the demands of the school curriculum.

Instructional plans that include experiences for learners in all three learning dimensions . . . intellectual, attitudinal, and psychomotor . . . facilitate learning. Consider, for example, the concept "thumb tack." Focusing on the intellectual dimension, a teacher might first introduce a learner to the attributes of a thumb tack by having him read a written

description. Moving on to the psycho-motor task of manipulation, the teacher might next have the learner pick up the tack, roll it around in his fingers, feel its weight and its shape. In a perverse mood, he might conclude the exercise by instructing the learner to sit (briefly!) on the pointed end of the tack . . . an experience sure to provide him with some attitudinal perspectives concering the pointed ends of tacks (and perhaps teachers,too). After surviving this apocryphal lesson involving a systematic blending of intellectual, psychomotor, and attitudinal components, it is doubtful that a learner would soon forget the critical features of the new concept, thumb tack.

Whether or not a conscious and systematic division is made, all instruction has intellectual, attitudinal, and psycho-motor components. Emphases on one or another of these dimensions varies among subject areas, programs, and teachers. In very general terms, there tends to be a heavier emphasis on pscho-motor tasks in secondary school physical education classes than in secondary school English classes. But in both cases all three components of learning are present to some extent.

A difficulty many teachers have faced has been their tendency to focus on that component of learning they have seen as the major contributor to learning in their subject area. For example, some English teachers have emphasized only the intellectual dimension of learning. A consequence of this practice has been that many learners in English class have developed undesirable attitudes toward the subject and may even have felt some measure of physical discomfort during English classes. To avoid such pitfalls, teachers need to formulate instructional objectives that focus on each of the three dimensions of learning regardless of their subject areas.

The intellectual dimension. The intellectual dimension, sometimes referred to as the "cognitive domain," has been the subject of intense investigation. In a seminal educational document, Taxonomy of Educational Objectives: Handbook I, Cognitive Domain, Benjamin S. Bloom and others suggest a taxonomy of intellectual learning. According to this taxonomy, learning proceeds from the simple to the complex in a series of stages beginning with memory and recall sorts of processes and increasing in sophistication to include analysis, synthesis, and evaluation. An implication that has been drawn from this work is that teachers ought to strive for instructional procedures that enable learners to become increasingly adept at using higher level intellectual processes. Young people should be able to operate more frequently at the levels of analysis, synthesis, and evaluation as a consequence of our instructional programs. Such an intellectual progression by our young people is unlikely to occur without careful planning.

Planning requires a systematic varying of the levels of intellectual challenges with which learners are confronted as teachers help them move beyond the use of simple recall to higher level mental processes. In the absence of this kind of planning, large numbers of teachers have tended to develop instructional objectives that have demanded too little of learners. Memorization tasks and simple factual recitation requirements are examples of the sorts of inadequate objectives we have established at the expense of activities requiring application, inferential, and evaluation capabilities.

To provide for an expanding sophistication of intellectual functioning of learners, there is a need to plan for instructional objectives that challenge pupils and students to operate atvaried intellectual levels. As a framework under which to organize instructional objectives at different levels of intellectual functioning, the following adapatation of Bloom's scheme is useful:

Level I: Knowing and Understanding

Level II: Applying

Level III: Inferring

Level IV: Evaluating

Under Level One, "knowing and understanding," instructional objectives can be developed that:

1. require the recall of specific facts
2. require an explanation for a given process or phenomenon when "facts" have been given previously.

Examples:

Each pupil will write the names of at least five of the past six presidents.

Group six will explain orally, with no mistakes, which states have the highest per capita income according to the Statistical Abstract of the United States.

Each student will write a short paper on how a bill becomes a law, mentioning at least five of the steps described in class.

Under Level Two, "applying," instructional objectives can be developed that:

1. require the learner to apply previously learned information to new situations.

Examples:

With 100% accuracy, each child will state orally that blue represents water on his new map as well as on his old map.

Each pupil will name at least five new words that start with the "p" sound.

Each student will solve for the length of the hypotenuse with 100% accuracy using the Pythagorean theorem.

Under Level Three, "inferring," instructional objectives can be developed that:

1. require the learner to develop responses that go beyond a simple recitation of the available facts.

Examples:

Group seven will write a group paper in which three possible consequences of the petroleum shortage are discussed.

Each student will suggest six possible consequences of a change in weather that would give Phoenix, Arizona 100 inches of annual rainfall.

Each student will write a paper in which he names the individual most likely to be the 1980 Republican candidate for President.

Under Level IV, "evaluating," instructional objectives can be developed that:

1. require the learner to state criteria for making a judgment.
2. require the learner to make a judgment.

Examples:

Each student will state his preference for either the underhand or the overhand method of making the free throw, indicating at least three reasons for his choice.

Group six will write a group paper on the effectiveness of monetary policy in slowing inflation since World War II, supporting their position with at least ten citations from business and economics journals.

Each pupil will tell why he liked or did not like the story, giving five specific reasons for his decision.

All teachers need to write some instructional objectives that fall under each of these four levels of the intellectual dimension of learning. No broad prescriptions are possible concerning the relative numbers of objectives that ought to be written at each level. Each teacher must make that decision in the light of his own circumstances. The important thing is that a conscious effort be made to plan for objectives at all four levels. Careful planning of this nature can assure that youngsters will be led through a broad spectrum of experiences that can increase the sophistication of their intellectual functioning. In the absence of such planning, any increases in learners' abilities to conceptualize at more abstract levels will be difficult to attribute

to the instructional program.

The attitudinal dimension. Educators have long recognized the importance of the attitudinal dimension of learning. Statements of goals and objectives that relate to attitudes and values have been a traditional feature of district curriculum guides. Despite the concern for values in statements of school policy and in curriculum guides, teachers have been reluctant to develop instructional objectives that focus specifically on the attitudinal dimension of learning. Teachers' hesitancy to get involved in this area stems from several traditional dilemmas.

The first of these relates to the problem of evaluating attitudinal objectives. What sorts of behaviors are to be observed? What criteria can be used to establish levels of satisfactory performance? Is it really even possible to measre a change in an attitude or a value? Frequently teachers have given up the quest for answers to these thorny questions and have avoided the attitudinal dimension altogether.

The lack of enthusiasm for developing objectives in this area has been reinforced by some critics who have contended that attitudes ought to be considered personal and private. The non-public nature of attitudes and values, some allege, implies that they are an improper focus for instruction in the school. A difficulty with this position is that attitudes and values are inextricably bound up with the intellectual and psycho-motor dimensions of learning. Since attitudes affect youngsters' performances on intellectual and psycho-motor tasks, teachers cannot make a good case for failing to plan for learning in the attitudinal dimension. Weak planning in the attitudinal dimension is quite likely to result in weak learner performance on tasks relating to intellectual and psycho-motor abilities as well as

on a specific task relating to attitudes or values.

Having made a commitment to plan in the attitudinal dimension, teachers need to begin by identifying the sorts of objectives for which it is appropriate they become accountable. Surely there are areas, for example processes leading to the development of highly personal values, that are outside the realm of the school's responsibility. On the other hand, teachers do have a proper professional state in helping youngsters to develop positive attitudes toward learning. Most teachers would consider themselves failures if they were to do a "good" job introducing content only to find that their students had developed a distaste for their subject area.

Abundant evidence underscores the fact that educators are not doing an adequate job in helping youngsters to develop a positive attitude toward learning. Over one-half of our high school graduates never read a book after leaving school. Many elections attract fewer than fifty-percent of the registered voters. Teachers have a professional responsibility to work for the development of attitudes that can change these statistics.

Attitudes are mental constructs that are inferred from observable behavior. For example, from the statistics above relating to voting behavior, an observer can infer an attitude of political indifference. In dealing with attitudes, teachers have to make decisions concerning which attitudes are of interest and which behaviors can be used to infer how individual youngsters stand with respect to those attitudes. Critics are sometimes bothered by the idea that a teacher might want to compare youngsters' standings with respect to various attitudes in much the same way that arithmetic scores might be compared. Any teacher attempting such a use of information concerning the nature of youngsters' attitudes clearly is making an improper use of his data.

It must be recognized that youngsters' attainment of objectives in the

attitudinal dimension must never be used for conventional grading purposes. One main contribution of attitudinal objectives is the provision of systematic information to the teacher concerning how his instructional program and teaching style are influencing the attitudes of his learners toward the subjects he is teaching. This information is of great interest to the individual teacher, but it is hardly suitable for the purposes of distributing letter grades.

Teachers need to consider the process of valuing as they formulate attitudinal objectives. An understanding of this process can shed light on how values come to be internalized. This information can provide a basis for preparing attitudinal objectives that ultimately may bring about changes in certain youngsters' feelings about the school program.

Raths, Harmin, and Simon (1966) have proposed a seven step process of valuing. The development of a value, according to their framework, involves the following sequential elements:

1. Choosing freely
2. Choosing from among alternatives
3. Choosing after thoughtful consideration of the consequences of each alternative
4. Prizing and cherishing
5. Affirming
6. Acting upon choices
7. Repeating

The intent of this framework is to assist individuals in considering what it is they value, where that value came from, and what actions they have taken reflecting that value. This information helps people to recognize, in a conscious sense, those values that are the bases for their actions. By bringing these values to a level of conscious examination, it becomes feasible for individuals to accept or reject these values along with actions flowing from these values.

The Raths, Harmin, Simon framework can be used to guide the development of attitudinal objectives that are directed toward helping youngsters to examine their values and make decisions based on those values. In most classroom situations, it is not reasonable to expect youngsters to go much beyond step five, "affirming." Instructional objectives , however, can be developed for each of the first five steps.

Level I: Choosing Freely. This level indicates that a youngster is able to make choices in the absence of pressure.

Example: When confronted with several alternative positions, the group will allow each individual to choose his position without exerting pressure upon him.

Level II: Choosing from among Alternatives: This level indicates that a youngster knows what other choices are available.

Example: When making a choice of a position, the learner states at least two other possible choices.

Level III: Choosing after Thoughtful Consideration of the Consequences of Each Alternative. The youngster is able to identify the likely consequences of a choice made from among several alternatives.

Example: After making a choice, the learner states the possible consequences.

Level IV: Prizing and Cherishing. The youngster at this level indicates sincere personal satisfaction with his choice.

Example: After making a choice, the learner expresses his satisfaction with that choice through either written or oral statements.

Level V: Affirming. The youngster at this level is willing to affirm a choice publicly.

Example: By the conclusion of the unit, the learner makes at least one public statement indicating a choice he has made.

The utility of attitudinal objectives derived through the use of this framework relates most clearly to the problem of identifying those values

youngsters hold and are willing to commit themselves to publicly. Teachers face a slightly different task in attempting to promote positive attitudes toward learning. In this case, the teacher is not so much interested in learning what a pupil values as he is interested in fostering an appreciation for something the school values.

As a preliminary step in developing objectives designed to promote improved attitudes toward learning, teachers need to ask: "What do people who have an appreciation of this subject do?" Take the example of music. Music buffs frequently are observed listening to recordings or to a good FM station. They read books and articles about music. They attend concerts. They go to lectures given by prominent conductors and other musical figures. Finally, they talk about music whenever the opportunity arises.

A comparable list of afficianado behaviors could be prepared for football fans, fishermen, skiiers, and stamp collectors. All of these people are likely to spend their free time engaged in rather predictable sorts of activities. People seeing someone engaged in one of these activities tends to say a silent, "Aha, another ice fisherman! or poker player. or whatever."

This same technique can be used to determine the degree to which our educational programs are developing committed "fans." There is a need to determine the sorts of behavior indicators that will be looked for to identify the youngster that is turned on by teaching of the American heritage, or chemistry, or stitchery. Attitudinal objectives should consist of lists of clusters of those behaviors that characterize individuals who have "taken" to a subject. For example, the following behaviors might be tried as likely indicators of attitude toward reading:

> By the conclusion of the unit, a minimum of fifteen pupils will demonstrate an appreciation of reading by:
>
> 1. getting a library card at the public library

2. choosing to read during at least 25% of "free-time" periods.
3. voluntarily telling others about a good book.
4. buying books from the book club.

True, there may not be a one-to-one relationship between each of these criteria and the general area of "appreciation of reading," but the accumulated evidence of the several behaviors collectively can provide valuable evidence regarding the degree of "appreciation." Information derived from these lists of behaviors provide useful referents for teachers who are considering possible changes in their instructional practices.

A final area that relates to the attitudinal component of learning concerns the development of instructional objectives that enable students and pupils to recognize the values that undergird decisions made by others. When youngsters are taught to search for values lying behind statements of other people, they become less susceptible to the blatantly dogmatic, the perniciously propagandistic.

Example: Given three statements, the learner will list the values expressed in each statement and will point out which statement is most consistent with values expressed in the Bill of Rights.

Few teachers have been formally grounded in the preparation of instructional objectives in the attitudinal dimension. Hopefully this dimension of learning will attract more professional attention as the intimate connection between youngsters' attitudes and success in the total school program becomes more widely appreciated. Certainly careful planning in this area can produce dividends for the classroom teacher running across the entire spectrum of the school experience.

The psycho-motor dimension. The psycho-motor dimension centers on the physical aspects of learning. While motor responses more obviously

are an essential feature of certain curricular areas, notably physical education, they play some role in all parts of the school program. The psychomotor dimension includes such things as hand-eye coordination and large and small muscle control. This dimension of learning plays a particularly important role in handwriting, reading readiness, music, physical education, and art.

The psycho-motor dimension of learning typically focuses on some sort of a motor response. Instructional objectives in this area tend to be sequenced in such a fashion that the learner ultimately will be able to perform specific psycho-motor tasks unaided and in different situations. Three levels of behavior in the psycho-motor dimension provide a framework for the systematic development of objectives in this area:

Level I: Performs as guided
Level II: Performs unaided one time
Level III: Performs unaided repeatedly and in different settings.

Level I: Performs as guided. At this level, the learner performs an activity correctly with help.

Examples:

Each pupil writes one row of the small letter "o" in which no part of the letter extends above the "beltline."

John does at least two somersaults, aided by the teacher.

Each pupil ties a shoelace at least once, aided by the teacher.

Level II: Performs unaided one time. At this level, the learner internalizes the behavior to the extent that he can perform at least once without teacher help.

Examples:

Each student raises at least one six-inch pon on the potters wheel.

Peter prints two rows of small "n's" with no parts cutting through the "beltline."

Each pupil does at least one backward roll.

Level III: Performs unaided repeatedly and in different settings.

At this level, the behavior should be highly internalized so that the learner can perform easily in a variety of situations.

Examples:

Each pupil catches a ball from a distance of ten feet at least 8 out of 10 times on two separate days.

Each student makes at least 6 out of 10 underhand free throws on at least two separate days.

Sarah walks at least 10 feet on the balance beam on at least two separate days.

The emphasis reflected in objectives in the psycho-motor domain is on assisting youngsters to develop internal motor control over various physical acts. Learners need to be involved in activities systematically sequenced from guided to unaided performance. Each teacher needs to determine the timing and exact nature of the experiences provided for his own pupils or students. This determination ought to be based on diagnostic information gathered regarding the individual capabilities of each youngster. Some mechanisms for gathering information of this kind will be provided in the next chapter.

. . .

Competency Check

As a result of reading this package, you should be able to answer each of the following knowledge-level questions:

1. What relationship exists between educational goals and instructional objectives?
2. What are the three necessary components of an instructional objective?
3. What are the three categories of instructional objectives?
4. How do "knowing and understanding" objectives differ from "applying" objectives?

5. Why is it desirable to develop some objectives at the "knowing and understanding" level, some at the "applying" level, some at the "inferring" level, and some at the "evaluating" level?

6. How do instructional objectives written at each of the following levels vary from one another?

   a. performs as guided
   b. performs unaided one time
   c. performs repeatedly and in different settings

7. What are the features of instructional objectives written at each of the following levels?

   a. choosing freely
   b. choosing from among alternatives
   c. prizing and choosing
   d. affirming

8. What are the advantages of developing instructional objectives that are stated in terms of observable learner behavior?

9. What relationship exists between individual school subjects and each of the three categories of instructional objectives?

10. What advantages accrue to the teacher who prepares specific instructional objectives?

. . .

Recycling

A Selective List of Other Books
of Interest to Preparers of Instructional Objectives

Developing and Writing Performance Objectives. Tucson, Arizona: Educational Innovations Press, 1971.

Gronlund, Norman E. Stating Behavioral Objectives for Classroom Instruction. New York: The Macmillan Company, 1970.

Kapfer, Miriam B. Behavioral Objectives in Curriculum Development. Englewood Cliffs, New Jersey: Educational Technology Publications, 1971.

Kibler, Robert J., Barker, Larry L; and Miles, David T. Behavioral Objectives and Instruction. Boston: Allyn and Bacon, 1970.

Mager, Robert F. Preparing Instructional Objectives. Palo Alto: Fearon Publishers, 1962.

McAshan, H.H. Writing Behavioral Objectives: A New Approach. New York: Harper and Row, 1970.

Plowman, Paul D. Behavioral Objectives: Teacher Success through Student Performance. Chicago: Science Research Associates, 1971.

Popham, W. James et al. Instructional Objectives. Chicago: Rand McNally, 1969.

Raths, Louis E.; Harmin, Merrill; and Simon, Sidney, B. Values and Teaching. Columbus, Ohio: Charles E. Merrill, 1966.